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Sang Jun Youn

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EXAMINER

DUCHENEAUX, FRANK D

ART UNIT

PAPER NUMBER

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/599,523	<b>Applicant(s)</b> YOUN ET AL.	
	<b>Examiner</b> FRANK D. DUCHENEAUX	<b>Art Unit</b> 1788	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-27 and 34-39 is/are pending in the application.
- 4a) Of the above claim(s) 11-27 and 34-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### **Examiner's Note**

The examiner acknowledges the cancellation of claims 28-33 in the amendments filed 9/27/2010.

### **Response to Amendment**

1. Applicant's arguments, see page 9, filed 9/27/2010, with respect to the objection of claim 7 have been fully considered and are persuasive. The objection of claim 7 has been withdrawn.

2. Applicant's arguments, see page 9, filed 9/27/2010, with respect to the rejection of claims 1-5 and 7-10 under 35 U.S.C. 112, 1<sup>st</sup> paragraph have been fully considered and are persuasive. The rejection of claims 1-5 and 7-10 has been withdrawn.

3. Applicant's arguments, see pages 9-10, filed 9/27/2010, with respect to the rejection of claims 1-5 and 7-10 under 35 U.S.C. 12, 2<sup>nd</sup> paragraph have been fully considered and are persuasive. The rejection of claims 1-5 and 7-10 has been withdrawn.

### **Claim Objections**

4. **Claim 8** is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the

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claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The elements of the Markush group modifying the fibers of the center layer are broader than the glass fibers previously recited in current claims 1-2.

### **Claim Rejections - 35 USC § 103**

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. **Claims 1, 5, 7 and 10** rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. (US 5294394) in view of Hsiao et al. (US 2002/0009935 A1).

**Regarding claim 1, 5, 7 and 10**, Sakai teaches preparation of fiber-reinforced thermoplastic molded articles (title) comprising a laminate (column 9, line 47) of a plate material (center layer) essentially consisting of a thermoplastic resin and fibrous reinforcement (thermoplastic

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composite material), and a sheet (continuous layer) prepreg obtained by impregnating a unidirectionally (aligned) arranged fiber with a thermoplastic resin (column 5, lines 9-13), said sheet prepreg is set up on either one or both of the surfaces (upper and lower surface) of the back of the plate material to provide an extremely remarkable increase in strength (column 5, lines 49-52) and said prepreg layer having a reinforcing fiber content of 30 wt. % - and thereby 70 wt. % of a thermoplastic resin (Table 2, prepreg E and Example 8).

Sakai also teaches that prescribed numbers of the sheet prepreg are stacked (outermost prepreg sheet serving as a protective layer) in an arbitrary portion on the sheet material and that the sheet material is maintained above the flow temperature (melted) of the thermoplastic resin and then placed in a mold and pressed (adhered) for a short time to carry out foaming, defoaming and cooling and that the resin in the plate material is the same as that of the prepreg; (column 5, lines 37-48).

Sakai continues to teach a plate material made of a thermoplastic resin with a fibrous reinforcement of a glass fiber (glass fiber-reinforced thermoplastic resin layer) (Table 1, plate material (b) and Example 8). Sakai further teaches suitable thermoplastic resins for the plate material include polypropylene, polyethylene, nylon, PET and polyphenylene sulfide (column 2, lines 40-48); and those resins exemplary for the sheet prepreg include polypropylene, polyethylene, nylon, PET and polyphenylene sulfide (column 3, lines 43-50).

The examiner notes that, while Sakai is specifically silent to a continuous reinforcing fiber-impregnated prepreg layer laminated on a at least one whole surface of an upper and lower surface of a center layer, as set forth above, Sakai does teach that sheet prepreg is set up on either

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one or both of the surfaces of the back of the plate material to provide an extremely remarkable increase in strength.

Although Sakai does not disclose a center layer prepared by melt-extruding, it is noted that “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process”, *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) . Further, “although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product”, *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). See MPEP 2113.

Therefore, absent evidence of criticality regarding the presently claimed process and given that Sakai meets the requirements of the claimed composition, Sakai clearly meet the requirements of the present claims.

Therefore, it would have been obvious to one of ordinary skill in the art to provide the sheet prepreg layers on an entire surface of a plate material given that one of ordinary skill could easily distinguish the necessity of strengthening the whole surface or surfaces of the plate material over strengthening only a portion of a surface or surfaces of a plate material as I n the present invention.

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Sakai is silent to a continuous reinforcing fiber-impregnated prepreg layer formed by drawing and pressing fibers through an impregnation die supplied with a thermoplastic resin melt in a tape or strand shape and aligning the fibers in the form of welts and warps.

However, Hsiao teaches core-crush resistant fabric and prepreg fiber reinforced composite sandwich structures (title) comprising a fabric (10) having a plurality of openings (16) by interweaving warp tow strands (12) and weft tow strands (14) (bi-directional structure) (para 0033, lines 1-3 and figures 1-4), wherein each tow strand is formed from a plurality of continuous filaments and fibers such as those made of high modulus reinforcing fibers such as carbon (natural), fiberglass and aramid (para 0034), and a suitable resin composition for the polymeric matrix resins such as, inter alia, polyester and polyamides (para 0039, lines 1-11), said resin applied to the fabric such that the fabric is substantially impregnated and having a resin content of from about 20 to about 60 percent by weight based on the total weight of the prepreg, and the prepreg can further undergo other treatment such as calendaring or compaction to reduce the openness of the prepreg (para 0053). Hsiao continues to teach that prepregs made with the interweaving tow strands greatly reduces the porosity (para 0074, lines 1-3).

Although Sakai and Hsiao do not disclose “drawing and pressing fibers passed through an impregnation die supplied with a thermoplastic resin melt,” it is noted that “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious

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from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process”, In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Further, “although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product”, In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). See MPEP 2113.

Therefore, absent evidence of criticality regarding the presently claimed process and given that Sakai and Hsiao meet the requirements of the claimed continuous reinforcing fiber-impregnated prepreg layer, Sakai and Hsiao clearly meet the requirements of the present claims.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Sakai and Hsiao references toward fiber-reinforced thermoplastic molded articles having continuous reinforcing fiber-impregnated prepreg layer constructed of high modulus fibers laminated on both sides of a plate material thereby providing the composite structure with reduced porosity as in the present invention.

8. **Claims 2 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. (US 5294394) in view of Hsiao et al. (US 2002/0009935 A1) and in further view of Funakoshi (US 2003/0161989 A1).

**Regarding claims 2 and 8**, Sakai and Hsiao teach the fiber-reinforced thermoplastic molded articles as in the rejection of claim 1 above. Sakai also teaches that the content of fibrous

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reinforcement in the plate material is from 30 to 70 % by weight and in view of reinforcing effects alone higher amounts are better, but a content exceeding 70 % by weight leads to flowability problems, while in view of flowability a content of 50 % by weight or less is preferred (column 3, lines 37-42). Sakai is silent to fibers with an average length of 1-30 mm.

However, Funakoshi teaches a lightweight fiber-reinforced thermoplastic resin molding (title) comprising fibers of an average length of 2 mm to about 10 mm (para 0040) and that tensile and bending strength tend to be greater as the length of reinforcing fibers increases (para 0039).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Sakai, Hsiao and Funakoshi references to provide a fiber-reinforced thermoplastic plate material having fibers in a percent weight as presently claimed and a length as presently claimed towards fiber-reinforced thermoplastic molded articles, wherein a plate material has an amount of fiber content sufficient to provide reinforcing characteristics while maintaining adequate flowability, said fibers additionally providing tensile and bending strengths commensurate with the application for which the articles are to used as in the present invention.

9. **Claims 3 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. (US 5294394) in view of Hsiao et al. (US 2002/0009935 A1) and in further view of Nagayama et al. (US 6749934).

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**Regarding claims 3 and 9**, Sakai and Hsiao teach the fiber-reinforced thermoplastic molded articles as in the rejection of claim 1 above. Hsiao also teaches well known flow control agents, albeit added to the resins of the prepreg layer, to adjust the viscoelasticity of a resin composition such as inorganic particles (para 0041) such as, inter alia, calcium carbonate (para 0043). Sakai and Hsiao are silent to a center layer comprising 15 to 30 % by weight of inorganic filler.

However, Nagayama teaches an FRP molded article and method for producing the same (title), comprising a mixture of thermoplastic resin and reinforcing fibers (abstract) and a filler such as needle-like calcium carbonate (column 7, lines 43-47), wherein the needle-like filler content is 5 to 20 wt. % (column 8, lines 23-26).

Nagayama also teaches a fine filler, especially a needle-like filler, inhibits local molding shrinkage and irregular stiffness, which mitigates warping (column 8, line 67 and column 9, lines 1-4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Sakai, Hsiao and Nagayama references to provide the plate material with an inorganic filler material in an amount as presently claimed towards a fiber-reinforced thermoplastic molded article, wherein the viscosity of the resinous plate material can be controlled for processing of the fiber-reinforced thermoplastic molded article, and which is less susceptible to local shrinkage of the mold and irregular stiffness and provides a molded article with diminished warping and thereby an article with improved aesthetic appearance as in the present invention.

10. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. (US 5294394) in view of Hsiao et al. (US 2002/0009935 A1) and in further view of Bassett et al. (EP 0945253 A2).

**Regarding claim 4**, Sakai and Hsiao teach the fiber-reinforced thermoplastic molded articles as in the rejection of claim 1 above. Hsiao also teaches well known flow control agents, albeit added to the resins of the prepreg layer, to adjust the viscoelasticity of a resin composition such as organic particles (para 0041) such as, inter alia, cellulose (para 0043). Sakai and Hsiao are silent to a center layer comprising 20-40 % by weight of wood flour and chaff.

However, Bassett teaches a filled composite material (title) comprising a polyolefin, glass fibers and filler (abstract), wherein said filler is a wood flour (para 0019, lines 1-2) with a content of 20 to about 40 % by weight of the composite (para 0036, line 3). Bassett also teaches that wood flour can be used for cost reduction of the composite materials.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Sakai, Hsiao and Bassett references to provide the plate material with an organic filler material in an amount as presently claimed towards a fiber-reinforced thermoplastic molded article, wherein the viscosity of the resinous plate material can be controlled for processing of the fiber-reinforced thermoplastic molded article, and which is less expensive to produce as in the present invention.

### **Response to Arguments**

11. Applicant's arguments, see pages 10-17, filed 9/27/2010, with respect to the rejection of claims 1, 5, 7 and 10 over Sakai et al. in view of Hsiao et al. under 35 U.S.C 103(a); the rejection of claims 2 and 8 over Sakai et al. in view of Hsiao et al. and in further view of Funakoshi under 35 U.S.C 103(a); the rejection of claims 3 and 9 over Sakai et al. in view of Hsiao et al. in further view of Nagayama under 35 U.S.C 103(a); and the rejection of claim 4 over Sakai et al. in view of Hsiao et al. under 35 U.S.C 103(a) in further view of Bassett et al. have been fully considered but they are not persuasive.

The applicants argue that the limitation of a continuous reinforcing fiber-impregnated prepreg layer formed by drawing and pressing fibers passed through an impregnation die supplied with a thermoplastic resin melt in a tape or strand shape, and aligning the fibers in a form of welts and warps is not disclosed by Sakai or Hsiao. Contrary to the requirements of the above-noted limitation, the applicants contend that the plate material of Sakai is formed via GMT process, which results in a portion of the fibers remaining non-impregnated due to cross-sections of the glass fiber mat.

The applicants also argue that the limitations of drawing and pressing fibers passed through an impregnation dies supplied with a thermoplastic resin melt and aligning the fibers in a form of welts and warps may exhibit properties superior to those of the plate material (emphasis provided by the examiner).

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The applicants have included a pictorial in the current arguments in support of said arguments, and submitted that the comparisons between the presently disclosed examples and comparative examples are similar to a comparison between the above-noted, currently claimed process limitations and the plate material of Sakai (emphasis by examiner).

The examiner respectfully disagrees with the applications contention given that, as noted by the applicants, the plate material of Sakai was employed to teach the currently claimed center layer and not the continuous reinforcing fiber-impregnated prepreg layer.

In addition, it is noted that “the arguments of counsel cannot take the place of evidence in the record”, *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). It is the examiner’s position that the arguments provided by the applicant regarding the superiority of the properties of the current invention versus those of the plate material of the Sakai reference, and the presently argued similarities between the above-noted comparisons, must be supported by a declaration or affidavit. As set forth in MPEP 716.02(g), “the reason for requiring evidence in a declaration or affidavit form is to obtain the assurances that any statements or representations made are correct, as provided by 35 U.S.C. 24 and 18 U.S.C. 1001.”

The applicants continue to argue that the prepreg of Example 1 was formed by weaving the glass fiber, which was then compared to Comparative Example 1 (CE 1) as demonstrated in Table 2 of the present disclosure, and the prepreps from Example 2, CE 2-1 and CE 2-2 are compared as demonstrated in Table 3. The applicants assert that differences in the argued properties are attributable to the differences in the processes employed to make the product of

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the examples and comparative examples, and thus distinguish over the Sakai and Hsiao references.

The examiner respectfully disagrees. It is first significant to note that the current arguments cite paragraph 0047 as disclosing that the glass fibers are weaved following impregnation of said fibers with a polypropylene resin. It is the examiner's position that this is a mischaracterization of the disclosed process of the current invention given that it is the tape that is weaved or laminated and not the glass fiber. Within the scope of the invention, it is clear that the tape or strands so weaved are themselves formed of the glass fibers, which would provide that the fibers would be orientated identical to the weaved tape or strands. However, it appears as if the applicants are attempting to argue that the glass fibers are weaved rather than simply the tape or strands. Clarification is requested.

The examiner respectfully notes that the data is not persuasive given that data is not commensurate in scope with the scope of the present claims given that argued examples and comparative examples recite a glass fiber content of approximately 40 wt.% while the claims recite a glass fiber content of 5 to 65 wt.%, and the current claims broadly recite a thermoplastic resin as an impregnant while the disclosed examples specifically employ a polypropylene.

As set forth in MPEP 716.02(d), whether unexpected results are the result of unexpectedly improved results or a property not taught by the prior art, "objective evidence of nonobviousness must be commensurate in scope with the claims which the evidence is offered to support." In other words, the showing of unexpected results must be reviewed to see if the results occurred over the entire claimed range, *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ

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289, 296 (CCPA 1980). Applicants have not provided data to show that the unexpected results do in fact occur over the entire claimed range of 5 to 65 wt.% glass fiber content, or for any thermoplastic resin.

With respect to Example 2 and the associated comparative examples, the data is not persuasive given that there is not a proper side-by-side comparison given that the construct of Example 2 (i.e. a laminate) is not the same as the comparative examples for at least that the comparative examples are not provided with the presently disclosed center layer.

The applicants further argue that a center layer prepared by melt-extruding as recited in the amended claims further distinguishes present invention over Sakai and Hsiao. However, the applicants have provided no additional argument as to how the additional product-by-process claims provide a distinction over the prior art references.

Although Sakai does not disclose a plate material obtained via melt-extrusion, it is noted that “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process”, *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) . Further, “although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product”, *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). See MPEP 2113.

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Therefore, absent evidence of criticality regarding the presently claimed process and given that Sakai meets the requirements of the claimed composition, Sakai clearly meet the requirements of the present claims.

The applicants finally argue that modification of Sakai to yield the presently claimed prepreg laminated on at least one **whole** surface of a center layer would change the principal operation of Sakai's invention. The applicants point to a portion of the Sakai publication as supporting their assertions, and thus claim that Sakai cannot be cited as disclosing the "whole" limitation currently claimed.

The examiner respectfully disagrees with the applicant's characterization of those portions of the Sakai reference in column 1, lines 59-63 in that said portions of the reference are contained within the background and are not a part of the referenced invention. In addition, it is also noted that the "unfavorable" aspects of which Sakai teaches is directed to prior materials used to solve similar problems, said prior materials being unfavorable in terms of cost.

### **Conclusion**

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANK D. DUCHENEAUX whose telephone number is (571)270-7053. The examiner can normally be reached on M-Th, 7:30 A.M. - 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie E. Shosho can be reached on (571)272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/FRANK D DUCHENEAUX/  
Examiner, Art Unit 1788

/Callie E. Shosho/  
Supervisory Patent Examiner, Art Unit 1787